



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/960,338	09/24/2001	Yuji Iseki	214306US2RD	4632

7590 03/22/2004
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT
1755 JEFFERSON DAVIS HIGHWAY
FOURTH FLOOR
ARLINGTON, VA 22202

EXAMINER

GRAYBILL, DAVID E

ART UNIT	PAPER NUMBER
----------	--------------

2827

DATE MAILED: 03/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/960,338	Applicant(s) ISEKI ET AL.	
	Examiner David E Graybill	Art Unit 2827	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 16-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Applicant's election with traverse of Group I, in the paper filed on 12-8-3, is acknowledged. The traversal is on the ground that "search and examination of the entire application would not place a serious burden on the Examiner." This is not found persuasive because there is a serious burden if restriction of Group I and Group II is not required, and this serious burden was sufficiently shown in the restriction requirement by appropriate explanation of separate classification, separate status in the art, and a different field of search. See MPEP 803..

The requirement is still deemed proper and is therefore made FINAL.

Claims 16-20 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the paper filed on 12-8-3.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 4-9, 10, 14 and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 10 the scope of the term "chip-shaped" is unclear because there is no art recognized definition of the term, and it is not otherwise explicitly defined in the disclosure.

There is insufficient antecedent basis for the following:

Claims 4 and 7, "the peripheral region";

Claim 14, "that of said semiconductor chip."

In the rejections *infra*, generally, reference labels are recited only for the first recitation of identical claim elements.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-6, 10, 11, 14 and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Okubora (6504096).

At column 6, line 56 to column 10, line 15; column 11, lines 30-34; column 12, lines 31-67; and column 14, lines 63-64, Okubora discloses a semiconductor device comprising: a module substrate 42 having a first main surface and a second main surface facing with the first main surface; a plurality of substrate-cite interconnects 4a, 4b disposed on the first main surface; a semiconductor chip 10 having top and bottom surfaces, being mounted with a flip chip configuration, configured such that the top surface

of the semiconductor chip facing to the first main surface of said module substrate so as to be aligned with said substrate-cite interconnects; a plurality of joints 20 connected to said substrate-cite interconnects, respectively; a circuit board 16 having top and bottom surfaces; a plurality of board-cite interconnects "patterned parts" disposed on the top surface of the circuit board, each being connected to one of said joints; and a first heat conductive material 14 thermally connecting the bottom surface of said semiconductor chip with the top surface of said circuit board; a heat conductive plate 16 in contact with said first heat conductive material; a second heat conductive material 11a in contact with said heat conductive plate and connecting thermally said heat conductive plate with the bottom surface of said semiconductor chip; an active element region "element forming surface" disposed at the top surface of said semiconductor chip and a plurality of bonding pads 10c-10f surrounding the active element region, the bonding pads disposed at the peripheral region on the top surface of said semiconductor chip; a plurality of bumps 8, each of bumps is sandwiched between one of said bonding pads and one of the said substrate-cite interconnects; a sealing resin 10g inserted between the top surface of said semiconductor chip and said first main surface of said module substrate; a chip-shaped circuit 10 component disposed on the first main surface; a plurality of back interconnects 44 disposed on the second main surface; a

dielectric spacer 18 disposed on the first main surface, the dielectric spacer having substantially same thickness as that of said semiconductor chip, enclosing said semiconductor chip and at least partly said joint; wherein said substrate-cite interconnects are sandwiched between said dielectric spacer and the first main surface.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okubora (6504096).

Okubora is applied for the same reasons it was applied to claims 1-6, 10, 11, 14 and 15.

Also, as cited *supra*, Okubora discloses a plurality of vias "internal interconnections," and, "interconnections inside the carrier board," each connecting one of said back interconnects to one of corresponding substrate-cite interconnects; and a chip-shaped (illustrated) circuit component "mother board" 2 disposed on the second main surface, being configured to connect with one of said back interconnects.

However, Okubora does not appear to explicitly disclose via metals.

Nevertheless, as cited, Okubora teaches via metal 4a, and it would have been obvious to use the metal 4a for the vias of Okubora because it would facilitate provision of the vias of Okubora.

Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okubora as applied to claim 6, and further in combination with Anderson (5969461).

As cited, Okubora discloses a resin-blocking groove 42a, selectively dug "pattern etching" at the first main surface, disposed just above the active element region.

To further clarify the disclosure of a resin blocking groove, it is noted that the limitation "resin blocking" is a statement of intended use of the groove which does not result in a structural difference between the claimed

groove and the groove of Okubora. Further, because the groove of Okubora has the same structure as the claimed groove, it is inherently capable of being used for the intended use, and the statement of intended use does not patentably distinguish the claimed groove from the groove of Okubora.

Similarly, the manner in which a product operates is not germane to the issue of patentability of the product; *Ex parte Wikdahl* 10 USPQ 2d 1546, 1548 (BPAI 1989); *Ex parte McCullough* 7 USPQ 2d 1889, 1891 (BPAI 1988); *In re Finsterwalder* 168 USPQ 530 (CCPA 1971); *In re Casey* 152 USPQ 235, 238 (CCPA 1967). Also, "Expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim."; *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969). And, "Inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims."; *In re Young*, 25 USPQ 69 (CCPA 1935) (as restated in *In re Otto*, 136 USPQ 458, 459 (CCPA 1963)). And, claims directed to product must be distinguished from the prior art in terms of structure rather than function. *In re Danley*, 120 USPQ 528, 531 (CCPA 1959). "Apparatus claims cover what a device is, not what a device does [or is intended to do]." *Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990).

However, Okubora does not appear to explicitly disclose wherein said sealing resin is selectively disposed on the peripheral region of said semiconductor chip so as not to contact with the active element region; and a coat-prevention film selectively contacted with the first main surface, disposed just above the active element region.

Nonetheless, at column 2, line 19 to column 5, line 17, Anderson teaches wherein sealing resin 28 is selectively disposed on the peripheral region of said semiconductor chip 10 so as not to contact with the active element region 12; and a coat-prevention film 26 selectively contacted with the first main surface 30, disposed just above the active element region. Moreover, it would have been obvious to combine this product of Anderson with the product of Okubora because it would enable manufacture of a SAW device.

The art made of record and not applied to the rejection is considered pertinent to applicant's disclosure. It is cited primarily to show inventions similar to the instant invention.

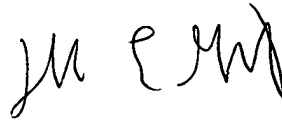
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any telephone inquiry of a general nature or relating to the status (MPEP 203.08) of this application or proceeding should be directed to Group 2800 Customer Service whose telephone number is 571-272-2815.

Art Unit: 2827

Any telephone inquiry concerning this communication or earlier communications from the examiner should be directed to David E. Graybill at (571) 272-1930. Regular office hours: Monday through Friday, 8:30 a.m. to 6:00 p.m.

The fax phone number for group 2800 is (703) 872-9306.

A handwritten signature in black ink, appearing to read 'D. E. Graybill', with a stylized, cursive script.

David E. Graybill
Primary Examiner
Art Unit 2827

D.G.

12-Mar-04